Private Forest Management Intent Survey – Northern NSW CRA Regions

A report undertaken for the NSW CRA/RFA Steering Committee

July 1999

PRIVATE FOREST MANAGEMENT INTENT SURVEY

NORTHERN NSW CRA REGIONS

NORTHERN NSW FORESTRY SERVICES
IN CONJUNCTION WITH
BUREAU OF RURAL SCIENCES

A report undertaken for the NSW CRA/RFA Steering Committee project number NA 47/ES

July 1999

Report Status

This report has been prepared as a working paper for the NSW CRA/RFA Steering Committee under the direction of the Economic and Social Technical Committee. It is recognised that it may contain errors that require correction but it is released to be consistent with the principle that information related to the comprehensive regional assessment process in New South Wales will be made publicly available.

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1. EXECUTIVE SUMMARY

This report has been prepared for the joint Commonwealth/State Steering Committee which oversees the comprehensive regional assessments (CRAs) of forests in New South Wales.

The CRAs provide the scientific basis on which the State and Commonwealth governments will sign regional forest agreements (RFAs) for the major forests of New South Wales. These agreements will determine the future of the State's forests, providing a balance between conservation and ecologically sustainable use of forest resources.

Private forests make up approximately 46% of the 3.9 million hectares of commercial forest types in the northern CRA region (Source BRS), which encompasses the Upper North East (UNE) and Lower North East (LNE) regions. In 1997 these private forests contributed 35% of the region's roundwood production (Source BRS/SFNSW 1999).

The aim of the project was to conduct an unbiased survey of private forest owners to obtain information on the private forest resources within the northern NSW CRA regions and make possible an analysis of management intentions on private forested land, including assessing the level of interest private managers have in commercial plantations.

More than 2000 (2128) landowners with properties in excess of 100 hectares were surveyed out of a target population of 10,160 (21% sample) in 35 local government areas within both CRA regions. The survey elicited a response rate of 11.9% (254 responses). The survey sought information about:

- Private native forest area and logging history.
- Private forest management intent, including timber production and conservation, factors impacting on management, inventory and flora and fauna assessment, the importance of forestry as an agricultural enterprise and potential markets for forest products.
- The level of interest from private landowners in establishing commercial plantations.

From the survey data, the estimated total area of private native forest over both CRA regions is approximately 2.38 million hectares. Of this area, 70% is New England hardwood and Spotted Gum forest types.

It should be noted that forest areas derived from the survey responses are approximate figures derived from extrapolations and as such are indicative only. No statistical analysis has been applied.
Ninety-three percent of respondents in UNE indicated they had native forests and 75% in LNE. Fifty-one per cent of survey respondents reported that logging had occurred on their properties and 62% intended to undertake logging.

More than 35% of total respondents indicated that they currently managed their forests for both timber production and conservation and would continue do so. Fifteen per cent managed for conservation only (including potential Voluntary Conservation Agreements); 5% managed for timber production alone, and the remainder (45%) managed for other uses, did not actively manage, or were non-committal.

In relation to important factors affecting forest management, 69% of respondents identified concern or confusion over regulatory and legislative requirements, 40% referred to problems in negotiating environmental controls, 43% to the need for good financial returns, and 49% to the need for professional management advice.

Almost 50% of landowners indicated an interest in having formal timber inventories undertaken and about 30% were interested in fauna/flora surveys.

Although more than 50% of respondents have been or will be involved in some form of forest management, they rated their forestry activities low relative to grazing and dairying, the two most common forms of land use. For more than 80% of respondents, their income from forestry amounted to less than 10% of total farm income.

Extrapolation of the survey results showed landowner interest in commercial plantations over an approximate gross area of 275,000 hectares. This is a gross area and takes no account of potential land capability or suitability for plantation purpose.

1. AIMS AND METHODOLOGY

1.1 AIMS AND OBJECTIVES

The aim of the project was to conduct an unbiased survey of landowners to assess the private forest resource and analyse landowners' management intentions. Specific objectives were to:

- assess existing information on private forest management within the region;
- estimate the size, location, type and management history of the private forest resource;
- assess the management intentions of private forest owners, including for timber production and/or conservation and the terms under which landowners would be prepared to harvest or conserve their forest resource;
- identify impediments to private forest management;
- determine landowners' interest in establishing commercial plantations (softwood and hardwood);
- gauge the willingness of landowners to participate in future assessments of their forest resource for economic and/or environmental attributes; and
- determine the level of support and advice required by landowners to manage their resource.

1.2 METHODOLOGY

The first step was to identify local government areas (LGAs) within the northern CRA regions and obtain details on landowners and their properties from relevant shire councils.

Of the 41 LGAs within the northern CRA regions, four have few if any rural holdings. The survey was restricted to the remaining 37 councils, which were asked to supply lists of all landowners with holdings of 100 hectares or larger. Cessnock City Council was unable to supply a list and Scone Council refused the request. There was no attempt to limit the survey to landowners whose properties carry native forest.

An analysis of the council ratings lists indicated there were approximately 10,161 landowners within the northern CRA region with properties in excess of 100 hectares. These landowners represented the target population for the survey.

This figure for landowners can be regarded as slightly higher than the actual target population size, because the lists were presented by property and not alphabetically by landowner. Landowners with more than one property were therefore listed several times. Although the lists were closely scrutinised, it can be assumed that some duplication of landowners names may still have occurred.

In LGAs with less than 100 landowners in the target population, 40% of the target was sampled; in larger LGAs, 20% of the target population was sampled. Surveyed landowners were selected at random from the council lists (every fifth landowner for a sample of 20%). The increased sampling size in smaller LGAs increases the sampling bias; however, this was considered acceptable as doing so provided a higher probability of responses in each LGA. A total of 2,128 landowners were sent the questionnaire (21% of the target population), of which 254 responded.

1.3 THE SURVEY FORMAT

Each selected landowner received a survey form and a covering letter explaining the purpose of the survey and its relationship to the RFA process. Respondents were given the option of identifying themselves or remaining anonymous.

The covering letter and survey is attached as Appendix A.

The survey sought the following information:

- Landowner's name and address (optional).
- Property details (location/portion/parish and area of native forest).
- Logging history, yields and method of sale.
- Management intent for existing native forest and potential future plantations, including:
  - proposed harvesting activities and conditions under which they would be undertaken;
  - proposed management regimes for timber production and conservation;
  - the importance of such factors as legislative uncertainty, the availability of professional advice, financial return and the negotiation of environmental controls in day to day forest management;
  - willingness to participate in timber inventories and/or flora and fauna assessments;
  - interest in forest conservation and size of area that could be involved;
  - the importance of forestry in relation to overall farm management, including the proportion of income gained from forestry; and
  - interest in plantation establishment, softwood or hardwood (or both), including the size of potential areas that could be established.

A map was attached to the survey for landowners to indicate the location of their property and, where applicable, the location of markets to which they had sold or intended to sell timber. This map is attached as Appendix B.

1.3.1 Follow-up Phone Surveys

Whilst the survey was designed to reduce bias in responses by targeting both timber production and conservation, as well as interest in plantations, a follow-up phone survey targeting non-respondents was designed to determine whether there was any significant bias in the responses to the written survey.
Based on the percentage of respondents to the original survey (12%), the phone survey aimed to target a minimum of 50 non-respondents. In order to achieve this, 89 (to take into account persons not willing to participate) landowners were selected at random from the list of landowners to whom surveys had been sent. Phone numbers were obtained from the internet White Pages listing.

The purpose of the phone survey was explained to each respondent, who was then asked:

1. Did you receive the survey and if so did you respond?
2. Do you have commercial native forest on your property?
3. If so, are you interested in harvesting this resource or reserving it for conservation purposes, or both?
4. Are you interested in establishing hardwood or softwood plantations on your property?

1.4 EXISTING STUDIES

Studies undertaken by Northern NSW Forestry Services in 1994 and 1996, covering approximately 60% of the two northern CRA regions, identified a total private forest area of approximately 1.3 million hectares, the predominant forest associations being dry mixed hardwoods, spotted gum and New England hardwoods. The studies estimated the potential annual yield of these private forests at greater than one million cubic metres.

Landowner surveys conducted for both studies identified concerns and confusion over legislation, the regulation of private forestry, and the lack of markets for low grade products and thinnings as impediments to private forest management.

A later study by Specht and Emtage (1998), of landowners' perceptions of farm forestry in the Northern Rivers region (northern part of the UNE region) identified the following issues as important to landowners:

- cost of establishing farm forestry enterprises,
- the financial returns,
- guarantee of harvest legislation,
- reluctance to enter into partnerships with other agencies that would reduce their management control over their land.

2. SURVEY RESULTS

2.1 SURVEY RESPONSE

Of the 2,128 landowners surveyed, 254 responded (11.9%).

The response rate, is summarised in Table 2.1 by LGA.

TABLE 2.1 LANDOWNER SURVEY RESPONSE SUMMARY

LGA	No. of Properties > 100 ha	No. of land-owners surveyed	Sampling intensity (%)	Surveys returned Number	Surveys returned *Number %*
Upper north east					
Tweed	218	45	20.6	3	6.7
Byron	32	13	40.6	2	15.4
Ballina	39	16	41.0	1	6.3
Lismore	68	27	39.7	1	3.7
Kyogle	722	144	19.9	19	13.2
Casino	20	8	40.0	0	0.0
Richmond River	444	88	29.8	10	11.4
Tenterfield	814	163	20.0	21	12.9
Glen Innes	10	4	40.0	0	0.0
Severn	724	145	20.0	8	5.5
Copmanhurst	345	69	20.0	14	20.3
Ulmarra	125	26	20.8	3	11.5
Maclean	62	25	40.3	5	20.0
Nymboida	366	75	20.5	9	12.0
Guyra	544	109	20.0	8	7.3
Coffs Harbour	44	18	40.9	5	27.8
Lower north-east					
Dumaresq	487	97	19.9	13	13.4
Uralla	432	86	19.9	12	14.0
Walcha	660	132	20.0	20	15.2
Nundle	211	43	20.4	5	11.6
Bellingen	180	37	20.6	4	10.8
Nambucca	209	42	21.1	6	14.3
Kempsey	413	83	20.1	8	9.6
Hastings	488	97	19.9	11	11.3
Greater Taree	254	50	19.7	5	10.0
Gloucester	465	93	20.0	8	8.6
Great Lakes	212	42	19.8	4	9.5
Port Stephens	81	32	39.5	4	12.5
Wyong	12	5	41.7	0	0.0
Dungog	452	90	19.9	14	15.6
Muswellbrook	400	80	20.0	8	10.0
Maitland	43	17	39.5	1	5.9
Singleton	535	106	19.8	7	6.6
Lake Macquarie	3	2	66.7	0	0.0
Hawkesbury	47	19	40.4	1	5.3
Could not be identified				14	
Totals — UNE	4577	975	21.3	109	11.2
Totals — LNE	5584	1153	20.6	131	11.4
Totals all LGAs	10161	2128	20.9	254	11.9

A proportion of landowners within the target population of 10,161 would have properties with no forest on them (see table 2.3). In designing the survey it was impossible to eliminate properties carrying no forest within the constraints of time and budget.

The proportion of surveys returned varied greatly between LGAs and no specific statistical relationship can be deduced. There was no response from landowners in the three smallest LGAs (that is, those with the smallest target populations of 3, 10 and 12 landowners). In other LGAs the response rate varied between 3% and 28%. It should also be noted that not all respondents answered every question in the survey.

2.2 NATIVE FOREST AREA

Landowners' responses detailing their forest types was entered into an Access database that included:

- survey number
- property area
- forest area on property
- forest yield association (based on State Forests' Research Note 17)
- CRA region

The amount of forest area by yield association was calculated from respondents' estimations of their forested area. These data are summarised in Table 2.2. Forest yield associations are based upon SFNSW research note 17 forest types and links forest types with similar growth rates and yields. This makes analysis compatible with other production forest under SFNSW management.

The owners estimates of forest types and areas can be compared with table 2.5 which shows areas by forest yield association mapped using CRA API data (source BRS/SFNSW 1999).

TABLE 2.2 LANDOWNERS ESTIMATE OF FOREST AREA (DESCRIBED BY FOREST YIELD ASSOCIATION*)

Forest type Yield association	Upper Northeast CRA region		Lower Northeast CRA region		Total North CRA regions	
	Area (ha)	Proportion	Area (ha)	Proportion	Area (ha)	Proportion
1- moist blackbutt	1180	3%	823	3%	2003	3%
2- moist coastal eucalypt	5043	14%	3466	12%	8509	13%
3- semi moist eucalypt	9907	27%	7194	24%	17101	26%
4- dry spotted gum and dry blackbutt	6583	18%	3607	12%	10190	15%
5- dry sclerophyll	5821	16%	2997	10%	8818	13%
6- moist Tablelands	2914	8%	6734	22%	9648	15%
7- dry Tablelands	1467	4%	5103	17%	6570	10%
8- non eucalypt/non productive	0	0%	8	0%	8	0%
10- rainforest	30	0.1%	100	0.3%	130	0.2%
Total	36323	100%	29924	100%	66247	100%

* for explanation see Table 2.5

The figures in Table 2.2 vary slightly from that in Table 2.4 given the potential interpretation difficulties with some responses.

The proportion of respondents is also calculated and shown in Table 2.3. This figure has been divided into a number of categories depending on the completeness in which the landowner responded, as some landowners did not specify forest area. In summary, approximately 93% of upper north east and 75% of lower north east respondents had private forest on their property.

TABLE 2.3 RESPONDENTS INDICATING OWNERSHIP OF NATIVE FOREST

Forest presence	Upper North East CRA region		Lower North East CRA region	
	No.	Proportion	No.	Proportion
No data	2	2%	13	9%
Definite	99	83%	88	61%
Likely	12	10%	21	14%
No forest	6	5%	23	16%
Total	119	100%	145	100%

2.2.1 Broad Forest Types described by forest leagues (SFNSW 1989)

The total area of native forest owned by respondents was 59,418 hectares. This area was then allocated by forest league (as described in State Forests of NSW Research Note 17). The area is summarised by CRA region and forest league in Table 2.4. This information is also presented as forest yield associations (which link forest types of similar growth rates) to make it consistent with other CRA descriptions of forest types in Table 2.2. Analysis of private forests for the full CRA region as shown in table 2.5 indicate approximately 1.8 million hectares of commercial private native forest types in Northern NSW dominated by the dry spotted gum and dry blackbutt, dry sclerophyll, and semi moist eucalypt yield associations.

TABLE 2.4 NATIVE FOREST AREA BY CRA REGION AND FOREST LEAGUE

Forest type by Forest league	Upper Northeast CRA region		Lower Northeast CRA region	
	Area (ha)	Proportion	Area (ha)	Proportion
Blackbutt	2742	8%	3444	14%
Sydney bluegum/Balgalay	640	2%	2762	11%
Grey gum/Grey ironbark	3959	11%	2925	12%
Spotted gum	17163	50%	3173	13%
Grey Box/ironbark	0	0%	70	0%
Red gum	0	0%	12	0%
Scribbly gum/stringybark/silvertop ash	0	0%	726	3%
Messmate/brown barrel	9970	29%	11832	47%
Total forest area (hectares)	34474	100%	24944	100%

Of the total area, the spotted gum and messmate-brown barrel (New England hardwoods) leagues dominate, representing 34% and 37% of the total area respectively. Of the remainder, the blackbutt, grey gum/grey ironbark (mixed hardwoods) and Sydney blue gum/Bangalay leagues make up 10%, 12% and 6% of the area respectively. The remaining leagues make up about 1% of the area.

The total area of private hardwood forest in the northern CRA region has been extrapolated from the survey data and is estimated at 2.38 million hectares. This figure was achieved by multiplying of the area indicated from survey responses by the inverse proportion of responses by the inverse proportion of the total population surveyed. The forest area has been broken down into forest leagues as follows:

Forest League	Estimated Area (ha)
Messmate/brown barrel	880,000
Spotted gum	809,000
Grey gumgrey ironbark	286,000
Blackbutt	238,000
Sydney blue gum/Bangalay	143,000
Others	24,000

The extrapolated figures for total private forest area and forest league area should be regarded as indicative. They are derived from the proportion of those respondents who provided data on the area of forest on their property.

Comparison of Areas with Previous Studies

Data from BRS/SFNSW (1999) indicates 46% (1.8 million hectares) of the 3.9 million hectares of commercial forest types are on private land. This information is shown in table 2.5. The total area extrapolated from this survey (2.38 million hectares) indicates a 30% over estimate compared with the above figure.

In studies undertaken by Northern NSW Forestry Services in 1994 and 1996, a total gross area of approximately 1.3 million hectares of private forest was identified in a coverage of about 60% of the area that was sampled in this survey. On a proportional basis the Northern NSW Forestry Services figure corresponds within 20% of the area determined from this survey. The forest area estimated in this survey can be regarded as an over estimate given the above comparisons. This is most likely attributed to possible bias in survey responses from those with native forest in addition to the constraints of a relatively small response rate and that some respondents were unsure of the area of forest on their properties.

TABLE 2.5 NATIVE FOREST YIELD ASSOCIATIONS OVER PRIVATE LAND FOR NORTHERN NSW (BRS/SFNSW 1999)

Yield association	Description	Forest associations	Research note 17 Forest types	Upper North East (hectares)	Lower North East (hectares)	Proportion commercial forest types
1	Moist blackbutt	1	36, 37a	6734 (1%)	28,479 (3%)	2%
2	Moist coastal eucalypt	3, 4, 5	45, 46, 47, 48, 49, 51, 52, 53, 54, 55	54769 (7%)	181,058 (19%)	13%
3	Semi moist eucalypt	3, 6, 7, 8, 9	48, 60, 68, 70, 71, 74, 76, 81, 89, 92, 93	168,291 (21%)	220,708 (23%)	22%
4	Dry spotted gum and dry blackbutt	2, 8	37, 38, 39, 70, 72, 74	207,021 (26%)	104,143 (11%)	18%
5	Dry sclerophyll	9	40, 64, 65, 82, 83, 84, 87, 92, 93, 98, 101, 122, 177	197,465 (25%)	234,934 (24%)	24%
6	Moist Tablelands	10	150, 151, 153, 154, 155, 159, 163, 170, 172	79,388 (10%)	125,763 (13%)	12%
7	Dry Tablelands	9, 11, 12	122, 131, 161, 163, 170, 172	87,299 (11%)	74,728 (7%)	9%
	Total Commercial Forests	All above	As per above	800,967	969,813	100%
8	Non eucalypt/non productive	13, 17	30, 31, 32, 65, 92, 105, 106, 107, 111, 117, 126, 129, 130, 137, 138, 140, 141, 142, 144, 207, 211, 214, 215, 216, 220, 221, 223, 224, 225, 226, 230, 231, 233, 234, 235	284,731	308,436	
9	Plantation	15		400	246	
10	Rainforest	14		31,862	23,423	
11	Water courses			N/A	N/A	

2.2.2 Logging History

Of the 254 respondents, 130 properties (68 in UNE and 62 in LNE) have a logging history dating back up to 60 years. Of these, 98 properties (54 in UNE and 44 in LNE) have been subject to some form of logging over the last 20 years. More significantly 46 of these properties in UNE and 26 in LNE have been logged in the past 10 years.

Beyond this the data cannot be used to derive an estimate of areas logged or yields as many landowners could not supply such information. The lack of information is a reflection of the fact that accurate records are not kept by many landowners (or in some cases they had purchased the property after the last logging event).

2.3 MANAGEMENT INTENT

A total of 224 respondents provided usableanswers to the management intent section of the survey. The responses were analysed to develop a picture of landowners' management intent in relation to both commercial forestry (existing forests or proposed plantations) and conservation.

Because of the distribution of the responses no conclusive pattern could be drawn by LGA. The analysis of management intent therefore has been largely aggregated to the UNE and LNE CRA regions.

A broad summary of the responses to the management intent section of the survey is attached as Appendix B.

2.3.1 Future Logging Events

A total of 138 respondents (62%) indicated that they intended to undertake logging operations (76 in UNE and 62 in LNE). Of these 58 indicated that such operations would be carried out in the next five years (35 in UNE and 23 in LNE), with the remainder more than five years from now.

Seventy-seven respondents (34%) indicated that they did not intend to undertake any form of logging (25 in UNE and 42 in LNE). Whilst many did not indicate a reason, the most common reasons listed were that the timber stands were being managed for conservation only or were not being actively managed at all.

Of the 138 respondents who indicated logging might be undertaken, the most common conditions or reasons were:

- to supplement income (24% of respondents);
- for on-farm use (21%);
- to supply local markets (12%);
- silviculture/stand improvement (10%); and
- to supply own sawmill/manufacturing plant (7%).

2.3.2 Existing and Future Forest Management Intent

Responses varied to the question of how landowners managed their forests now and their management intentions. Table 2.3 is a summary of the responses by CRA region.

TABLE 2.6 SUMMARY OF MANAGEMENT INTENT RESPONSES BY CRA REGION

		Response (numbers and % by CRA Region)		
Management Intention		UNE	LNE	Total
Timber Production only	Now	5 (5%)	7 (6%)	12 (5%)
	Future	5 (5%)	10 (9%)	15 (7%)
Timber production and conservation	Now	37 (35%)	40 (34%)	77 (35%)
	Future	47 (44%)	39 (33%)	86 (39%)
Conservation only	Now	19 (18%)	16 (14%)	35 (16%)
	Future	15 (14%)	12 (10%)	27 (12%)
No active management	Now	19 (18%)	24 (21%)	43 (19%)
	Future	6 (6%)	9 (8%)	15 (7%)
Undecided	Now	8 (7%)	10 (9%)	18 (8%)
	Future	9 (8%)	16 (14%)	25 (11%)
Other (ecotourism/grazing/timber & grazing/conservation & grazing)	Now	7 (7%)	6 (5%)	13 (6%)
	Future	7 (7%)	6 (5%)	13 (6%)
Not specified	Now	11 (10%)	13 (11%)	24 (11%)
	Future	17 (16%)	24 (21%)	41 (18%)

Across both the UNE and LNE regions the intention to manage for both timber production and conservation was the most common response, with 35% of respondents indicating that this was how they managed their forests now and 39% indicating that this was their management intention for the future. Sixteen per cent of respondents across both regions indicated that they currently manage for conservation only and 12% indicated that this was their intention for the future.

Five per cent of respondents indicated that they currently manage for timber production only and 7% indicated that this was their intention for the future. Six per cent of respondents indicated that they currently manage their forest for a variety of other uses (including ecotourism, limited timber production for on-farm use only, grazing only or grazing and conservation). The same proprtion indicated that this was their management intention for the future.

It was not possible to predict an area over which timber harvesting might be carried out in the future as the survey did not address net harvestable areas (and it is not possible to predict harvestable areas from the raw gross area data). Similarly, the area of private forest that might be reserved for conservation cannot be determined because not all respondents that indicated this management intent nominated the size of area to be conserved.

Thirty-eight per cent of respondents across both regions were non-committal about current management intent. They did not specify any management intention, indicated that they do not actively manage their forest or were undecided about what form of management they currently undertake. Thirty-six per cent indicated that this was also the case in terms of future management intent.

2.3.3 Factors Impacting on Forest Management

In responding to this section of the survey many landowners nominated more than one factor as being important in relation to the management of their forests. The range of responses is summarised in Table 2.7 by CRA region.

TABLE 2.7 SUMMARY OF THE IMPORTANT FACTORS IMPACTING ON PRIVATE FOREST MANAGEMENT

	CRA Region					
	UNE		LNE		Total Both Regions	
Forest management factor	**No.**	**%**	**No.**	**%**	**No.**	**%**
Uncertainty about legislative requirements	75	71%	80	69%	155	69%
Ability to negotiate environmental regulations and controls	47	44%	42	36%	89	40%
Negotiation of timber sales to maximise return	50	47%	47	41%	97	43%
Where to obtain professional management advice	53	50%	57	49%	110	49%

Most landowners (155 or 69% of respondents) regard uncertainty about legislative requirements as important to their forest management. The requirement to negotiate environmental regulations and controls was important to 49% (110 respondents), negotiating timber sales to maximise financial return was important to 97 (43%) and) where to go for professional advice was important to 89 respondents (40%).

The factors identified by landowners in this survey as having an impact on private forest management are not uncommon, as evidenced from previous studies (as well as recent seminars and workshops conducted on private forest management). In studies conducted by Northern NSW Forestry Services in 1994 and 1996, the most common factors identified as impediments to private forest management included:

- concern or confusion over legislative and regulatory requirements;
- the differences in planning controls for private forestry between local government areas;
- concern over government intervention in private land management; and
- lack of incentives for private forestry.

2.3.4 Private Forest Assessment

In the future it may be possible to undertake a more detailed assessment of the private forest resource, including timber inventories and flora and fauna surveys. The survey sought an indication of landowners' interest in further private forest assessment.

Forty-seven per cent of all respondents (50 in UNE and 55 in LNE) indicated they would participate in a timber inventory on their property. Twenty-four per cent (25 respondents) in UNE and 33% (38) in LNE indicated they would participate in a flora assessment and 25% (26) and 34% (39) respectively in a fauna assessment.

Few of the respondents placed conditions on participation in either timber inventories or flora and fauna assessments. Of those that did the most common responses were that:

- no interference be placed on normal management practices;
- assessments be undertaken in full consultation with the landowner
- assessments be carried out at no cost to the landowner; and
- results remain confidential and be made available to the landowner together with management advice.

2.3.5 Private Forest Conservation

A total of 60 respondents (23%) indicated that they intended to manage part or all of their forested areas for conservation (generally corresponding to those who indicated elsewhere in the survey that their existing or future intention was to manage their forests for conservation only or timber production and conservation). The total area across both CRA regions nominated for conservation only management is approximately 7,400 hectares (3,800 hectares in UNE and 3,600 in LNE).

Although only a small proportion of these respondents nominated a reason for conservation-only management, from those that did the principal reasons were as follows:

- maintenance of flora and fauna habitat;
- rainforest conservation;
- areas too steep and inaccessible to be usable;
- other non-usable or marginal land;

- riparian areas;
- erosion mitigation; and
- to maintain remnant forest areas.

Of the 60 respondents who indicated their intention to manage for conservation only, 51 indicated that they would be prepared to enter into some form of Voluntary Conservation Agreement (25 in UNE and 26 in LNE). This represents 23% of all respondents.

A small proportion of respondents prepared to enter into a VCA gave an indication of the reasons or conditions under which they would do so. These included:

- participation would depend on what guidelines or conditions were drawn up and what sort of contractual arrangement was involved;
- further advice would be required (including in relation to the above dot point);
- the agreement would need to remain voluntary;
- no limitations on current land use (including in some cases limited timber harvesting as well as the ability to continue with current farming practices such as grazing);
- some form of financial return for setting the land aside for conservation (e.g. an annuity);
- no restrictions on freehold title; and
- no cost to the landowner.

2.3.6 Forestry as a Farm Enterprise

Based on the survey responses, forest management is a relatively minor enterprise compared with the more traditional forms of agriculture. Grazing (mainly cattle and sheep) is by far the dominant form of land use undertaken by the respondents (a total of 76% [170] across both CRA regions).

Twenty respondents nominated forestry as part of their farming enterprise (either timber production alone or in combination with other agricultural enterprises), despite evidence elsewhere in the survey that more than 50% had logged their forests. The responses relating to the importance of forestry as an agricultural enterprise are summarised in Table 2.8.

TABLE 2.8 THE IMPORTANCE OF FORESTRY IN RELATION TO OTHER FARMING ENTERPRISES

	CRA Region					
	UNE		LNE		Total Both Regions	
Proportion of Income Dependent on Forestry	No.	%	No.	%	No.	%
Nil	71	67%	81	70%	152	68%
1-10%	16	15%	15	13%	31	14%
11-30%	8	8%	4	4%	12	5%
31-50%	4	4%	1	<1%	5	2%
51-99%	1	<1%			1	<1%
100%	1	<1%	1	<1%	2	<1%
Variable/did not nominate or not specified	9	9%	15	13%	24	11%

Importance of Forestry as a Source of Income

It would follow from Table 2.8 that timber production does not constitute a significant proportion of farm income. A total of 152 respondents over the two regions (68%) indicated that no part of their income was dependent on forestry. Forty-three respondents (19%) indicated that forestry contributed up to 50% of their income, although 31 of these respondents nominated the proportion as 10% or less. Only two respondents (<1%) indicated that their total income was generated by forestry.
Table 2.9 summarises the responses.

TABLE 2.9 PROPORTION OF FARM INCOME DEPENDENT ON FORESTRY

Proportion of Income Dependent on Forestry	UNE CRA Region		LNE CRA Region		Total Both Regions	
	No. of Respondents	% of respondents	No. of Respondents	% of Respondents	No. of Respondents	% of Respondents
Nil	71	67%	81	70%	152	68%
1 - 10%	16	15%	15	13%	31	14%
11 - 50%	8	8%	4	4%	12	5%
31 - 50%	4	4%	1	<1%	5	2%
51 - 99%	1	<1%			1	<1%
100%	1	<1%	1	<1%	2	<1%
Variable/ did not nominate or not specified	9	9%	15	13%	24	11%

2.3.7 Potential Plantation Development

A total of 95 respondents (37%) indicated an interest in establishing plantations on their properties (47 in UNE and 48 in LNE).

Table 2.10 summarises the plantation areas by CRA region as well as differentiating between softwood and hardwood plantations, or both.

TABLE 2.10 SUMMARY OF PROPOSED PLANTATION AREAS BY CRA REGION

CRA REGION	Existing Plantation (ha)			Proposed Hwd Plantation (ha)									
	Hardwood	Softwood	Hardwood - area not specified (No. of replies)	JV Government	JV Private Enterprise	JV either	Stand alone	JV Gov't and/or alone	JV Priv. Ent. and/or alone	Any (either JV or stand alone)	Undecided	Stand alone but area not specified (No. of replies)	JV Gov't but area not specified (No. of replies)
Total existing plantation	110	2643											
Upper North East	80	13	**2**										**2**
Lower North East	30	2630										**1**	**3**
Total proposed hardwood				0	0	0	0	0	0	192	40		
Upper North East				680	20	960	584	1250	80				
Lower North East				85	200	40	232	50		192	40		
Total proposed softwood													
Upper North East													
Lower North East													
Total proposed sftwd/hwd													
Upper North East													
Lower North East													
Interested but no details													
Upper North East													
Lower North East													

CRA REGION	Proposed Sftwd Plantation (ha)									
	JV Government	JV Private Enterprise	JV either	Stand alone	JV Gov't and/or alone	JV Priv. Ent. and/or alone	Any (either JV or stand alone)	Undecided	Stand alone but area not specified (No. of replies)	JV Gov't but area not specified (No. of replies)
Total existing plantation										
Upper North East										
Lower North East										
Total proposed hardwood										
Upper North East										
Lower North East										
Total proposed softwood	20	2	0	0			0	40		
Upper North East			4	116			200			
Lower North East	20	2	48	50				40	**1**	
Total proposed sftwd/hwd										
Upper North East										
Lower North East										
Interested but no details										
Upper North East										
Lower North East										

CRA REGION	Proposed Sftwd/Hwd Plantation (ha)										
	JV Government	JV Private Enterprise	JV either	Stand alone	JV Gov't and/or alone	JV Priv. Ent. and/or alone	Any (either JV or stand alone)	Undecided	Stand alone but area not specified (No. of replies)	JV Gov't but area not specified (No. of replies)	Species/area/method not specified (No. of replies)
Total existing plantation											
Upper North East											
Lower North East											
Total proposed hardwood											
Upper North East											
Lower North East											
Total proposed softwood											
Upper North East											
Lower North East											
Total proposed sftwd/hwd	0		0	75	40						
Upper North East	1310		150	50	40						
Lower North East	480		25	25					**1**	**1**	
Interested but no details											
Upper North East											**7**
Lower North East											**7**

Hardwood Plantation Area

Of the survey responses, a total area of 2,753 hectares of existing plantation was identified. The bulk of this (2,400 hectares) is made up of exotic pine plantations owned by Australian Pines and Products Limited. State Forests have a total of approximately 5,000 hectares of hardwood plantations under joint-venture arrangements with private landowners (pers. comm. State Forests Hardwood Plantation Division). Data on the total private plantation area within the two CRA regions was unavailable for this report.

Landowners in the survey nominated a total of approximately 4,400 hectares for hardwood plantation establishment (3,600 hectares in UNE and 800 hectares in LNE). Of the total area approximately 2,000 hectares would be established under a joint venture (JV) arrangement with either government or private enterprise, 800 hectares on a stand-alone basis (landowner-financed) and the remainder under a combination of JV or stand alone.

In the UNE significant interest in hardwood plantation establishment was indicated for both Tweed and Copmanhurst Shires (1,050 hectares and 1,100 hectares respectively). In the LNE the proposed area is significantly smaller, with the largest areas indicated for Dumaresq, Uralla and Nundle Shires (210, 190 and 190 hectares respectively).

Softwood Plantation Area

A total of 480 hectares was nominated for softwood plantation establishment (320 hectares in UNE and 160 hectares in LNE). Of the total area approximately 70 hectares would be established under joint venture (JV) arrangements (either government or private enterprise), 170 hectares on a stand-alone basis and 240 hectares under a combination of JV or stand alone.

In the UNE the largest areas of potential softwood plantation establishment was indicated for Kyogle and Copmanhurst Shires (100 hectares and 200 hectares respectively). In the LNE smaller areas are scattered over several LGAs.

Mixed Hardwood/Softwood Plantation Area

A total of approximately 2,000 hectares was nominated for potential plantation establishment to hardwood, softwood or a combination of both (1,500 hectares in UNE and 500 hectares in LNE). Of the total area 1,965 hectares would be established under joint venture (JV) arrangements (with either government or private enterprise), 75 hectares on a stand-alone basis and the remainder under a combination of JV or stand alone.

In the UNE significant potential establishment of either hardwood or softwood plantation or both was indicated for Richmond River Shire (1,000 hectares) and in the LNE for Singleton Shire (400 hectares).
In all three categories a number of respondents (14 in total) indicated an interest in plantation establishment but declined to nominate areas, species or preferred method of establishment.

Potential Plantation Area across the Northern CRA Regions

By extrapolating the data obtained from survey responses, the total area of plantation that potentially might be established across both CRA regions is approximately 275,000 hectares (217,000 hectares in UNE and 58,000 hectares in LNE). This is summarised by CRA region and plantation type in Table 2.10. This figure is a gross extrapolated area and takes no account of land capability or suitability for plantation establishment.

TABLE 2.11 TOTAL POTENTIAL PLANTATION AREA EXTRAPOLATED FROM SURVEY RESPONSES

	Area in hectares						
	Hardwood		Softwood		Hardwood/Softwood		
CRA Region	Area from Survey Responses	Extraploated area for CRA Region	Area from Survey Responses	Extraploated area for CRA Region	Area from Survey Responses	Extraploated area for CRA Region	Total potential area extrapolated from responses
Upper North East	3,600	144,000	320	12,800	1,500	60,000	216,800
Lower North East	800	32,000	160	6,400	500	20,000	58,400
Total	4,400	176,000	480	19200	2,000	80,000	275,200

2.3.8 Other Comments made by Respondents

The survey provided respondents with an opportunity to make further comments in relation to private forest management. Approximately 30% of respondents (65) took the opportunity to make further comments, which largely mirrored those made by respondents under the section dealing with factors impacting on management.

Respondents most commonly pointed to concerns over government regulation and interference in management, including the influence of environmentalists on government (13% of respondents). Other issues that were identified included:

- The compatibility between sustainable timber production and conservation (4% of respondents).
- Concerns that returns from forestry were too low compared to other agricultural enterprises (3%).
- The need to conserve habitat (3%).
- Interest in carbon credits, including their application to existing private forests.
- The need for more information on forest management.

2.3.9 Survey Coverage

Respondents were asked to indicate on a map the location of their property and the markets to which they had sold or potentially would sell timber. A master map was produced to provide an indication of the area covered by the survey and is attached as Appendix C.

Whilst the response rate varied between LGAs, the conclusion that can be drawn from this map is that the survey drew responses from a wide cross-section of both CRA regions and the coverage therefore can be regarded as comprehensive, with no apparent bias either between CRA regions or coastal and inland regions.

2.3.10 Phone Survey Results

From the list of landowners selected at random and surveyed by phone, 51 had received the written survey but not replied. Four landowners who had replied to the written survey were also sampled in the phone survey.

Forty-one per cent of the 51 landowners who had not replied to the written survey had commercial hardwood forests on their property. Of the written survey respondents 80% had commercial forests. These figures indicate a potential bias in the written survey towards landowners with commercial forests. While this is not statistically tested it seems to confirm the bias in written survey responses from those with native forests.

Of the 41% of phone survey respondents with commercial forests, 48% intended to manage their forest for timber production , 10% intended to manage for conservation only and 42% would manage for both timber production and conservation. This compares with 6%, 14% and 37% respectively from written survey responses. The disparity between the written and phone survey results for the proportion of landowners who intend to manage for timber production is significant, although the target population for the phone survey was considerably smaller and sampling errors may be involved.

Thirty-three per cent of the 51 phone survey landowners indicated they were interested in plantation establishment. This corresponds closely with the 37% from the written survey respondents.

3. CONCLUSIONS

The survey undertaken for this project resulted in a response rate of approximately 12% of a target population of 2,128 landowners. This figure represents 2.5% of the landowners within the UNE and LNE CRA regions with properties in excess of 100 hectares.

Figure 1 attached to this report illustrates the area over which responses were received within both CRA regions. In terms of survey coverage there was no apparent bias towards one or other of the regions or towards any particular geographical area.

Responses were received from all but the three smallest LGAs within the CRA regions, although there was variation in the response rate between LGAs.

A follow-up phone survey of 51 landowners who did not respond to the written survey indicated a potential bias towards landowners who had private forests on their property.

A number of conclusions can be drawn from the survey.

Private Forest Area

Based on previous studies in northern NSW and other published data, the area of commercial private forest in both CRA regions is estimated at 1.8 million hectares (about 46% of the total forest area). The area of private native forest determined from the survey data for this project (approximately 2.38 million hectares) is about 30% greater than the above figure.

Approximately 70% of private hardwood forest in the regions comprises forest types dominated by New England hardwood (the New England Tablelands making up about 30% of the area in both regions) and coastal species associated with spotted gum types. The remainder is forest either dominated by blackbutt or a mixture of coastal eucalypts.

More than 50% of landowners surveyed have undertaken logging in the past and more than 60% are planning to log their forests into the future.

Forest Management

Amongst those landowners who practice forest management, either for timber production or for both production and conservation, there is concern or confusion over the range of legislative and regulatory controls placed on management. Consequently respondents identified problems in negotiating their way around these controls as having an impact on their management.

There is some concern over the value of financial returns from forestry . Respondents also indicated that there is a shortage of information available on forest management.

There is considerable interest from landowners in seeking quantitative information on their forest resource. Half of those surveyed indicated that they would like a timber inventory undertaken and about one-third were interested in flora and/or fauna assessments.

Private forests play an important role in some regional economies. Although insufficient information was provided by respondents as to volumes harvested from private forests, based on previous studies undertaken in northern NSW approximately 300 licensed sawmills within the two CRA regions utilise in excess of 300,000 cubic metres of private hardwood resource per annum.

The survey revealed that despite this usage rate only about 20% of landowners rely on forestry for more than 10% of their income.

Plantations

Almost half of the respondents indicated an interest in plantation establishment (hardwood, softwood or both). Based on this interest, a potential area of 275,000 hectares could be established to plantations across both CRA regions.

4. BIBLIOGRAPHY

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5. APPENDICES

Appendix A Survey Form
Appendix B Management Intent Summary
Appendix C Private Forest survey coverage
Appendix D Map of private native forests in upper North East CRA region
Appendix E Map of private native forests in lower North East CRA region

5.1 **APPENDIX A** survey form

5.2 APPENDIX B MANAGEMENT INTENT SUMMARY

5.3 APPENDIX C SURVEY COVERAGE

5.4 APPENDIX D PRIVATE FORESTS EXTENT UPPER NORTH EAST NSW CRA REGION

5.5 APPENDIX E PRIVATE FOREST EXTENT LOWER NORTH EAST NSW CRA REGION